THE FISHER 90-T SERVICE MANUAL

MODEL 90-T

SERIAL NUMBERS
20001 — 29999 INCLUSIVE

PRICE: $1.00

FISHER RADIO CORPORATION · NEW YORK

N-629-2P

VOLTAGE AND RESISTANCE MEASUREMENTS

All readings taken with vacuum-tube voltohmmeter with respect to chassis ground, subject to 10% normal variation unless otherwise noted. Set dial pointer at extreme low end of scale. Volume control maximum, clockwise. Tone controls flat. Loudness contour and presence controls off. Rumble filter at 20 cycles, noise filter at 20 KC. DISTANT pushbutton depressed. Refer to parts list for key to geometrical symbols used on electrolytic capacitors.

Voltage Reference Chart

Set line voltage at 117 volts AC, 50-60 cycles. Readings are in DC volts with respect to chassis ground, unless otherwise noted. Use vacuum-tube voltmeter.

SYMBOL	CHNL	TUBE SOCKET PINS								
TUBES	SEL.	1	2	3	4	5	6	7	8	9
V1	FM	85	0	1.5	7 AC	0	170	80	85	0
V2	FM	125	-1.5a	0	0	6.3 AC	140	-1.5a	0	0
V3	FM	0	P	6.3 AC	0	190	50	0	X	X
	AM	N	P	6.3 AC	0	220	60	0	X	X
V4	FM	55	N	0	6.3 AC	0	190	N	N	0
	AM	60	N	0	6.3 AC	0	220	N	N	0
V5	FM	0	P	6.3 AC	0	190	90	0	X	X
V6	FM	18b	21c	6.3 AC	0	190c	90c	21c	X	X
V7	AM	N	1	0	6.3 AC	200	85	0	X	X
V8	AM	-9	0	6.3 AC	0	225	85	N	X	X
V9	FM	2.3b	0	6.3 AC	0	N	N	18b	X	X
V9	AM	N	0	6.3 AC	0	N	N	N	X	X
V10	FM	N	X	0	0	6.3 AC	180	50	X	50
	AM	N	X	0	0	6.3 AC	200	50	X	50
V11	ALL	60	N	P	0	13	65	N	X	X
V12	AM	130	0	P	13	0	120	N	X	X
	OTHER	120	0	P	13	0	110	N	X	X
V13	AM	85	0	1.5	19.5	13	75	0	1.5	0
	OTHER	80	0	1.4	19.5	13	70	0	1.4	0
V14	AM	86	X	19.5	13	X	0	3	X	X
	OTHER	80	X	19.5	13	X	0	3	X	X
V15	AM	205 AC	X	245	0	6.3 AC	X	205 AC	X	X
	OTHER	205 AC	X	230	0	6.3 AC	X	205 AC	X	X

Electrolytic Capacitors	CHNL SEL.	TERMINALS (SEE PARTS LISTS)			
		◗	■	▲	—
C80	AM	X	200	96	X
	OTHER	X	180	90	X
C118	AM	245	230	220	218
	OTHER	230	215	195	197
C124	ALL	19.5	X	24	X

NOTES

- AC AC volts
- N Less than 1 volt DC, negative
- P Less than 1 volt DC, positive
- X No connection
- a Varies with dial setting
- b Varies with R47, with LOCAL pushbutton depressed
- c Varies with LOCAL or STANDARD pushbutton depressed

Resistance Reference Chart

Disconnect the chassis AC power cord. Discharge all electrolytic capacitors to chassis ground through 100-ohm resistor. Disconnect all cables to associated equipment. Readings are in ohms unless otherwise noted.

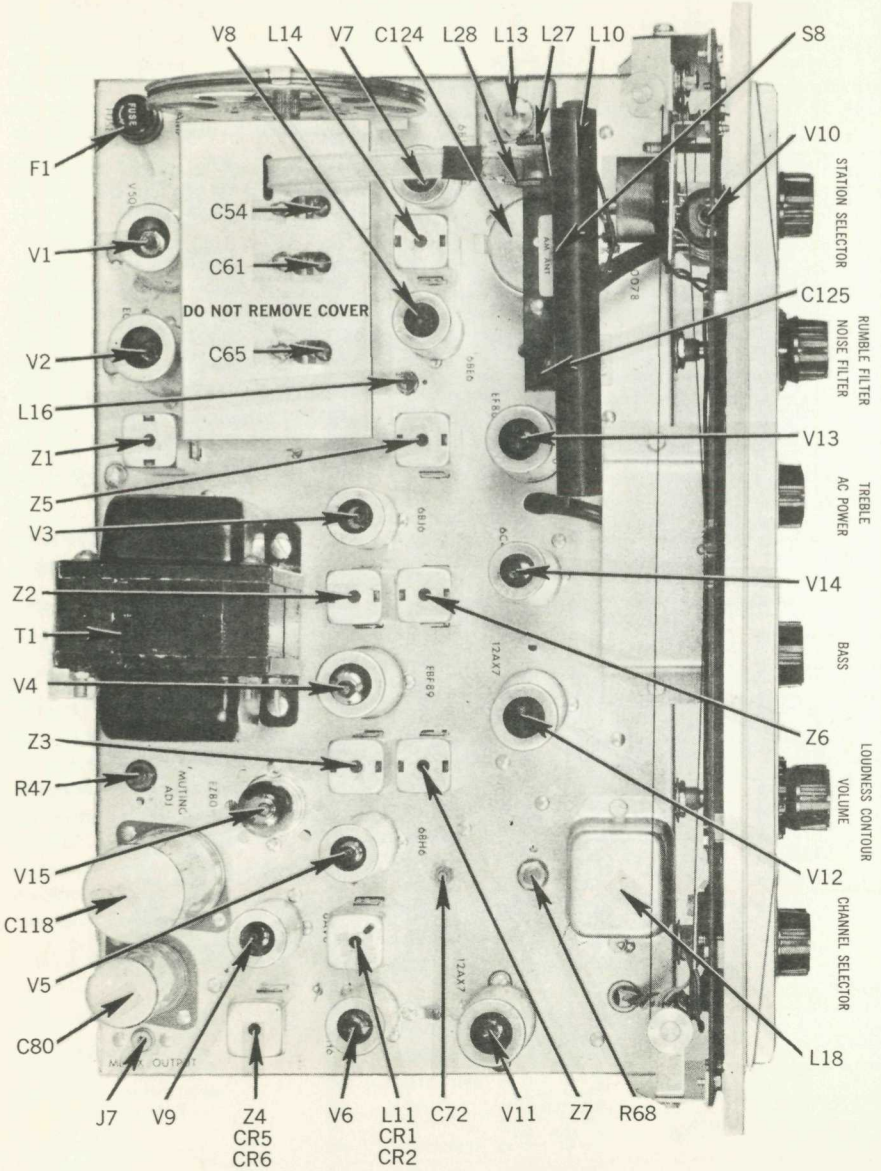
SYMBOL	CHNL	TUBE SOCKET PINS								
TUBES	SEL.	1	2	3	4	5	6	7	8	9
V1	FM	IMF	1M	100	L	0	40K	180K	INF	0
V2	FM	35K	1.5K	0	0	L	40K	820K	0	0
V3	FM	6	100	L	0	30K	130K	0	X	X
	AM	1.5M	100	L	0	150K	170K	0	X	X
V4	FM	220K	2.4M	0	L	0	31K	700K	76K	0
	AM	110K	2.4M	0	L	0	150K	650K	76K	0
V5	FM	L	100	L	0	40K	100K	0	X	X
V6	FM	47K	2.7K	L	0	30K	19K	2.7K	X	X
V7	AM	800K	100	0	L	150K	200K	0	X	X
V8	AM	22K	L	L	0	140K	180K	2.2M	X	X
V9	FM	500d	0	L	0	450K	100K	570K	X	X
	AM	500d	0	L	0	450K	1.5M	570K	X	X
V10	FM	220K	X	0	0	L	30K	500K	0	500K
	AM	3.3M	X	0	0	L	100K	500K	0	500K
V11	ALL	500K	330K	2.7K	0	14	500K	2.2M	2.7K	X
V12	AM	200K	450K	1.5K	14	0	200K	1M	1K	X
	OTHER	140K	450K	1.5K	14	0	140K	1M	1K	X
V13	AM	400K	X	1K	14	14	190K	0	1K	820K
	OTHER	400K	X	1K	14	14	140K	0	1K	820K
V14	AM	140K	X	14	14	X	1M	1.2K	X	X
	OTHER	85K	X	14	14	X	1M	1.2K	X	X
V15	AM	80	X	140K	0	L	X	80	X	X
	OTHER	80	X	30K	0	L	X	80	X	X

Electrolytic Capacitors	CHNL SEL.	TERMINALS (SEE PARTS LISTS)			
		◗	■	▲	—
C80	AM	X	140K	400K	X
	OTHER	X	30K	300K	X
C118	AM	140K	140K	140K	140K
	OTHER	30K	30K	30K	30K
C124	ALL	22	X	24	X

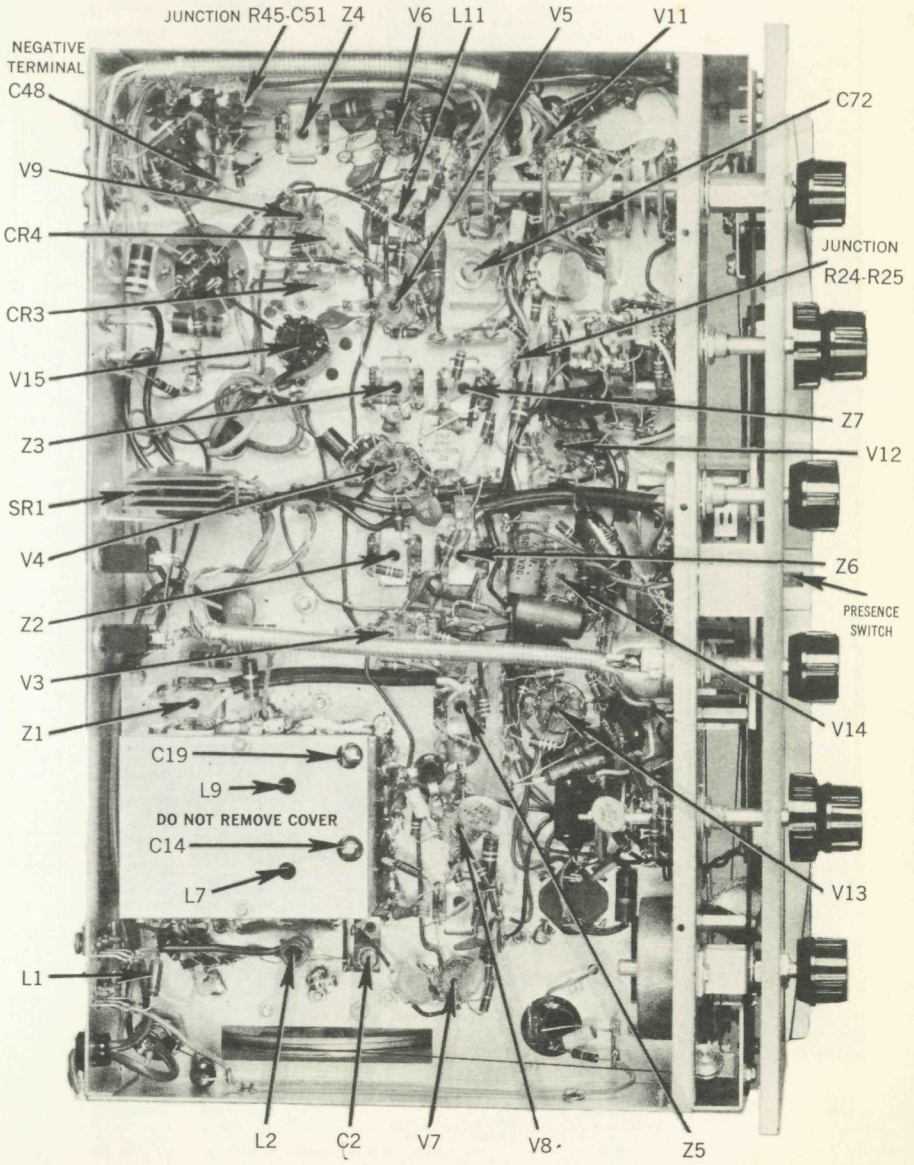
NOTES

- INF Infinite
- K Kilohms
- L Less than 1 ohm
- M Megohms
- X No connection
- d Varies with LOCAL pushbutton depressed

CHASSIS, TOP VIEW



CHASSIS, BOTTOM VIEW



CAPACITORS

20% tolerance for all fixed capacitors, unless otherwise noted or marked GMV (guaranteed minimum value.) Cer = Ceramic.

Symbol	Order No.	Description
C1	C-628-118	Variable, FM-AM tuning
C2	Part of C1	Trimmer, FM RF
C3	CC20CH050P5	Ceramic, 5 uuf NPO, 500V
C4, 5	C-50070-5	Ceramic, 100 uuf GMV, N1500, 1000V
C6	C-50071-2	Cer, .001 uf GMV, 1000V
C7-10	C-629-172	Ceramic, feed-through, .001 uf GMV, 600V
C11	C-629-170	Ceramic, .005 uf GMV, 500V
C12	C-50071-2	Ceramic, .001 uf GMV, 1000V
C13	CC21GP680K5	Ceramic, 68 uuf, 10% 500V
C14	C-643-153	Trimmer, FM mixer
C15	CC20CH030D5	Ceramic, 3uuf NPO, 500V
C16	CC20CH050F5	Ceramic, 5 uuf NPO, 500V
C17	CC21GP240K5	Ceramic, 24 uuf, 10%, 500V
C18	CC21GP121K5	Ceramic, 120 uuf, 10%, 500V
C19	C-643-153	Trimmer, FM Oscillator
C20	CC20TJ150J5	Ceramic, 15 uuf N470, 500V
C21, 22	C-577-121	Cer, 100 uuf, 600V
C23	CC21GP102K5	Ceramic, .001 uf, 10%, 500V
C24	C-629-172	Cer, feed-through, .001 uf GMV, 600V
C25, 26	C-629-170	Ceramic, .005 uf GMV, 500V
C27, 28	C-3334	Mica, 470 uuf, 5%, 300V
C29	C-50071-3	Ceramic, .02 uf, +80%/—20%, 600V
C30	CC20CH100G5	Ceramic, 10 uuf NPO, 500V
C31, 32	C-629-170	Ceramic, .005 uf GMV, 500V
C33	C-50070-1	Ceramic, 1 uuf P100, 1000V
C34	CC21GP221K5	Ceramic, 220 uuf, 10%, 500V
C35, 36	C-629-170	Ceramic, .005 uf, GMV, 500V
C37	C-50070-5	Cer, 100 uuf GMV, N1500, 1000V
C38	C-629-175	Electroyltic, 4 uf, 50V
C39	CC20CH050F5	Ceramic, 5 uuf NPO, 500V
C40	C-50070-5	Cer, 100 uuf GMV, N1500, 1000V
C41	CC20CH050F5	Ceramic, 5 uuf NPO, 500V
C42	C-629-170	Ceramic, .005 uf GMV, 500V
C43	C-50071-2	Ceramic, .001 uf GMV, 1000V
C44, 45	C-629-170	Cer, .005 uf GMV, 500V
C46, 47	C-50072-1	Ceramic, 330 uuf GMV, 1000V
C48	C-629-138	Electrolytic, 8 uf, 50V
C49	C-50072-1	Ceramic, 330 uuf GMV, 1000V
C50	C-50071-2	Ceramic, .001 uf GMV, 1000V
C51	C-50072-4	Ceramic, 1200 uuf, 10%, 1000V
C52	CC21GP240K5	Ceramic, 24 uuf, 10%, 500V
C53	CC21GP121K5	Ceramic, 120 uuf, 10%, 500V
C54	Part of C1	Trimmer, AM RF
C55, 56	C-50071-3	Ceramic, .02 uf, +80/—20%, 600V
C57	C-50070-4	Cer, 47 uuf N750, 10%, 1000V
C58	C-629-170	Ceramic, .005 uf GMV, 500V
C59	C-50077-6N	Special, 0.68 uuf, 500V
C60	CC20CH100G5	Ceramic, 10 uuf NPO, 500V
C61	Part of C1	Trimmer, AM RF
C62	C-50070-5	Cer, 100 uuf GMV, N1500, 1000V
C63	CC21GP121K5	Ceramic, 120 uuf, 10%, 500V
C64	CC20VK100G5	Ceramic, 10 uuf N1400, 500V
C65	Part of C1	Trimmer, AM oscillator
C66	C-50071-3	Ceramic, .02 uf, +80/—20%, 600V
C67	C-3334	Mica, 470 uuf, 5%, 300V
C68	C-629-170	Ceramic, .005 uf GMV, 500V
C69	C-3334	Mica, 470 uuf, 5%, 300V
C70	C-50074-27	Molded, .047 uf, 10%, 250V
C71	C-50070-3	Cer, 30 uuf N150, 10%, 1000V
C72	C-629-151-1	Trimmer, AM 10-KC filter
C73	CC21GP470K5	Ceramic, 47 uuf, 10%, 500V
C74	C-50071-3	Ceramic, .02 uf, +80/—20%, 600V
C75, 76	C50071-2	Ceramic, .001 uf GMV, 1000V
C77	C-629-170	Ceramic, .005 uf GMV, 500V
C78	C-50071-2	Ceramic, .001 uf GMV, 1000V
C79	C-50073-2	Ceramic, .05 uf, +80/—20%, 100V
C80	C-629-143	Electrolytic, two-section: C80-A: 20 uf, 250V C80-B: 40 uf, 250V
C81	C-629-170	Ceramic, .005 uf GMV, 500V
C82	C-50074-26	Molded, .022 uf, 10%, 250V
C83	C-639-114	Electrolytic, 25 uf, 6V
C84	C-50072-8	Ceramic, 1800 uuf, 10%, 1000V
C85	C-50072-7	Ceramic, 820 uuf, 10%, 1000V
C86	C-50072-6	Ceramic, 390 uuf, 10%, 1000V
C87	C-50073-2	Ceramic, .05 uf, +80/—20%, 100V
C88	C-50073-1	Ceramic, .02 uf, +80/—20%, 100V
C89	C-50070-3	Cer, 30 uuf N150, 10%, 1000V
C90	C-50073-2	Ceramic, .05 uf, +80/—20%, 100V
C91	C-639-114	Electrolytic, 25 uf, 6V
C92	C-50074-28	Molded 0.1 uf, 10%, 250V
C93	CC21GP221K5	Ceramic, 220 uuf, 10%, 500V
C94	CC21GP121K5	Ceramic, 120 uuf, 10%, 500V
C95, 96	C-50074-24	Molded, 4700 uuf, 10%. 250V
C97	C-50074-28	Molded, 0.1 uf, 10%, 250V
C98	C-639-114	Electrolytic, 25 uf, 6V
C99	C-50074-16	Molded, .027 uf, 10%, 125V
C100	C-50074-27	Molded, .047 uf, 10%, 250V
C101	C-50074-28	Molded, 0.1 uf, 10%, 250V
C102	C-639-114	Electrolytic, 25 uf, 6V
C103-5	C-50070-2	Cer, 12 uuf NPO, 10%, 1000V
C106, 7	C-50072-4	Ceramic, 1200 uuf, 10%, 1000V
C108	C-50072-2	Ceramic, 680 uuf, 10%, 1000V
C109	C-50074-24	Molded, 4700 uuf, 10%, 250V
C110	C-50074-25	Molded, .01 uf, 10%, 250V
C111	C-50074-28	Molded, 0.1 uf, 10%, 250V
C112	C-50072-5	Ceramic, 2200 uuf, 10%, 1000V
C113	C-50073-1	Ceramic, .02 uf, +80/—20%, 100V
C114	C-546-126	Electrolytic, 1 uf, 250V
C115	C-639-114	Electrolytic, 25 uf, 6V
C116	C-50071-2	Ceramic, .001 uf GMV, 600V
C117	C-629-172	Ceramic, feed-through, .001 uf GMV, 600V
C118	C-629-126	Electrolytic, four-section: C118-A: 40 uf, 250V C118-B: 40 uf, 250V C118-C: 40 uf, 300V C118-D: 40 uf, 300V
C119, 20	C-629-170	Cer, .005 uf GMV, 500V
C121	C-50071-2	Cer, .001 uf GMV, 1000V
C122	C-629-172	Cer, feed-through, .001 uf GMV, 600V
C123	C-2747	Molded, .01 uf, 600V
C124	C-629-144	Electrolytic, two-section: C124-A: 1000 uf, 25V C124-B: 1000 uf. 25V
C125	C-629-151-2	Trimmer, AM loopstick
C126	C-629-170	Ceramic, .005 uf GMV, 500V
C127	C-50070-4	Ceramic, 47 uuf N750, 10% 1000V
C128	CC20CH050F5	Ceramic, 5 uuf NPO, 500V

RESISTORS AND POTENTIOMETERS

In ohms, 10% tolerance, ½ watt, unless otherwise noted. K = Kilohm, M = Megohm.

Symbol	Order No.	Description
R1	RC20BF221K	Composition, 220
R2	RC20BF474K	Composition, 470K
R3	RC20BF101K	Composition, 100
R4, 5	RC20BF334K	Composition, 330K
R6	RC20BF102K	Composition, 1K
R7	RC20BF824K	Composition, 820K
R8	RC20BF4R7K	Composition, 4.7
R9	RC20BF152K	Composition, 1500
R10	RC30BF682K	Composition, 6800, 1W
R11	RC30BF103K	Composition, 10K, 1W
R12	RC20BF101K	Composition, 100
R13, 14	RC20BF823K	Composition, 82K
R15	RC20BF102K	Composition, 1K
R16	RC20BF101K	Composition, 100
R17	RC20BF100K	Composition, 10
R18	RC20BF824K	Composition, 820K
R19, 20	RC20BF225K	Composition, 2.2M
R21	RC20BF154K	Composition, 150K
R22	RC20BF823K	Composition, 82K
R23	RC20BF102K	Composition, 1K
R24	RC20BF563K	Composition, 56K
R25	RC20BF223K	Composition, 22K
R26	RC20BF335K	Composition, 3.3M
R28	RC20BF226K	Composition, 22M
R29	RC20BF563K	Composition, 56K
R30	RC20BF224K	Composition, 220K
R31	RC20BF223K	Composition, 22K
R32	RC20BF474K	Composition, 470K
R33	RC20BF102K	Composition, 1K
R34, 35	RC20BF474K	Composition, 470K
R36	RC20BF272K	Composition, 2700
R37	RC20BF183K	Composition, 18K
R38	RC30BF183K	Composition, 18K, 1W
R39	RC20BF152K	Composition, 1500
R40	RC20BF271K	Composition, 270
R41	RC20BF152K	Composition, 1500
R42, 43	RC20BF682K	Composition, 6.8K
R44	RC20BF102K	Composition, 1K
R45	RC20BF683K	Composition, 68K
R46	RC20BF103K	Composition, 10K
R47	R-629-141-1	Potentiometer, 50K, 20% FM muting adjust
R48	RC20BF224K	Composition, 220K
R49	RC20BF123K	Composition, 12K
R50	RC20BF183K	Composition, 18K
R51	RC20BF102K	Composition, 1K
R52	RC20BF4R7K	Composition, 4.7
R53	RC20BF105K	Composition, 1M
R54	RC20BF225K	Composition, 2.2M
R55	RC20BF101K	Composition, 100
R56	RC20BF473K	Composition, 47K
R57	RC20BF222K	Composition, 2200
R58	RC20BF4R7K	Composition, 4.7
R59	RC20BF824K	Composition, 820K
R60	RC20BF223K	Composition, 22K
R61	RC30BF223K	Composition, 22K, 1W
R62	RC20BF102K	Composition, 1K
R63	RC20BF101K	Composition, 100
R64	RC20BF226K	Composition, 22M
R65	RC20BF104K	Composition, 100K
R66	RC20BF334K	Composition, 330K
R67	RC20BF683K	Composition, 68K
R68	R-629-141-2	Potentiometer, 200K, 20%, AM 10-KC filter adjust
R69	RC20BF101K	Composition, 100
R70	RC20BF104K	Composition, 100K
R71	RC20BF474K	Composition, 470K
R72	RC20BF156K	Composition, 15M
R73, 74	RC20BF104K	Composition, 100K
R75	RC20BF102K	Composition, 1K
R76	RC20BF473K	Composition, 47K
R77	RC20BF102K	Composition, 1K
R78	RC20BF334K	Composition, 330K
R79	RC30BF224K	Composition, 220K, 1W
R80	RC30BF272K	Composition, 2700, 1W
R81	RC20BF225K	Composition, 2.2M
R82	RC20BF335K	Composition, 3.3M
R83	RC20BF125K	Composition, 1.2M
R84	RC20BF224K	Composition, 220K
R85	RC20BF272K	Composition, 2700
R86	RC20BF393K	Composition, 39K
R87, 88	RC20BF274K	Composition, 270K
R89	RC20BF334K	Composition, 330K
R90	RC20BF184K	Composition, 180K
R91	RC20BF105K	Composition, 1M
R92	RC20BF102K	Composition, 1K
R93	RC20BF334K	Composition, 330K
R94	RC20BF104K	Composition, 100K
R95	RC20BF105K	Composition, 1M
R96	R-629-123	Potentiometer, dual, volume, with S2: R96-A: 500K, 20% R96-B: 100K, 20%
R97	R-629-117	Potentiometer, 1M, 20%, bass
R98	R-629-116	Potentiometer, center-tapped, 500K, 20%, treble, with S7
R99	RC20BF473K	Composition, 47K
R100	RC20BF683K	Composition, 68K
R101, 2	RC20BF473K	Composition, 47K
R103	RC20BF683K	Composition, 68K
R104	RC20BF473K	Composition, 47K
R105	RC20BF104K	Composition, 100K
R106	RC20BF152K	Composition, 1500
R107	RC20BF225K	Composition, 2.2M
R108	RC20BF224K	Composition, 220K
R109	RC20BF824K	Composition, 820K
R110	RC20BF104K	Composition, 100K
R111	RC20BF102K	Composition, 1K
R112	RC20BF394K	Composition, 390K
R113-16	RC20BF106K	Composition, 10M
R117	RC20BF473K	Composition, 47K
R118	RC40BF120J	Composition, 12, 5%, 2W
R119	RC20BF105K	Composition, 1M
R120	RC20BF333K	Composition, 33K
R121	RC20BF104K	Composition, 100K
R122	RC20BF154K	Composition, 150K
R123	RC20BF105K	Composition, 1M
R124	RC20BF473K	Composition, 47K
R125	RC30BF473K	Composition, 47K, 1W
R126	RC20BF122K	Composition, 1200
R127	RC20BF684K	Composition, 680K
R128, 9	RC20BF272K	Composition, 2700
R130	RC40BF391K	Composition, 390, 2W
R131	RC40BF271K	Composition, 270,2W
R132	RC30BF241J	Composition, 240, 5%, 1W

COILS, TRANSFORMERS, CHOKES

Symbol	Order No.	Description
L1	L-50066-8	Choke, antenna, 3.3 uh
L2	L-629-177	Coil, tuned, FM antenna
L3	L-50066-3	Choke, RF, 1.2 uh
L4	L-50066-19	Choke, RF, 0.56 uh
L5	L-629-180	Choke, assembly, FM RF
L6	L-50066-19	Choke, RF, 0.56 uh
L7	L-629-178	Coil, tuned, FM RF
L8	L-50066-3	Choke, RF, 1.2 uh
L9	L6-629-179	Coil, tuned, FM oscillator
L10	L-50066-3	Choke, RF, 1.2 uh
L11	L-551-121	Coil assy, tuned FM lim.
L12	L-629-176	Loopstick, AM antenna
L13	L-629-171	Coil, tuned, AM antenna
L14	L-556-125	Coil, tuned AM RF
L15	L-50066-3	Choke, RF, 1.2 uh
L16	C-550-122	Coil, tuned, AM oscillator
L17	L-50066-3	Choke, RF, 1.2 uh
L18	L-629-152	Coil, AM 10-KC filter
L19	L-629-153	Coil, presence
L20, 21	L-50066-19	Choke, filament, 0.56 uh
L22	L-520-156	Choke, filament
L23-26	L-592-189	Choke, ferrite bead, filament
L27, 28	L-50066-3	Choke, RF, 1.2 uh
T1	T-629-118	Transformer, power
Z1	ZZ-630-114	Transf. assy, 1st FM IF
Z2, 3	ZZ-629-142	Transformer assy, 2nd and 3rd FM IF
Z4	ZZ-592-170	Transf. assy, FM det
Z5, 6	ZZ-629-135	Transf. assy, 1st and 2nd AM IF
Z7	ZZ-2984	Transf. assy, 3rd AM IF

MISCELLANEOUS

Symbol	Order No.	Description
CR1, 2	V-1N295	Crystal diode, FM limiter
CR3, 4	V-1N541	Crystal diode, FM muting
	V-1N66	Interchangeable with V-1N541
CR5, 6	V-1N542	Crystal diodes, matched pair, FM detector
F1	F-3329	Fuse, 1 ampere
I1-6	I-588-120	Lamp, channel indicator
I7, 8	I-563-145	Lamp, dial edge lighting
J1-4	J-50048	Jack, input
J5-7	J-3143	Jack, input
J8, 9	J-546-129	Receptacle, auxiliary AC
L*	AS-520-163-2	Dipole antenna, FM
P*	P-1031	Plug, input, RETMA type
PC1	PC-552-105	Printed ckt, tone control
S1	S-629-134	Switch, channel selector
S2	Part of R96	Switch, loudness contour
S3, 4	S-629-140	Switch, dual, rumble and noise filter
S5, 6	S-628-117	Switch, pushbutton, muting and bandwidth
	S-629-129	Interchangeable with S-629-117
S7	Part of R98	Switch, AC power
S8	S-629-156	Switch, AM antenna
S9	S-629-155	Switch, presence
SR1	SR-629-157	Selenium rectifier, fil

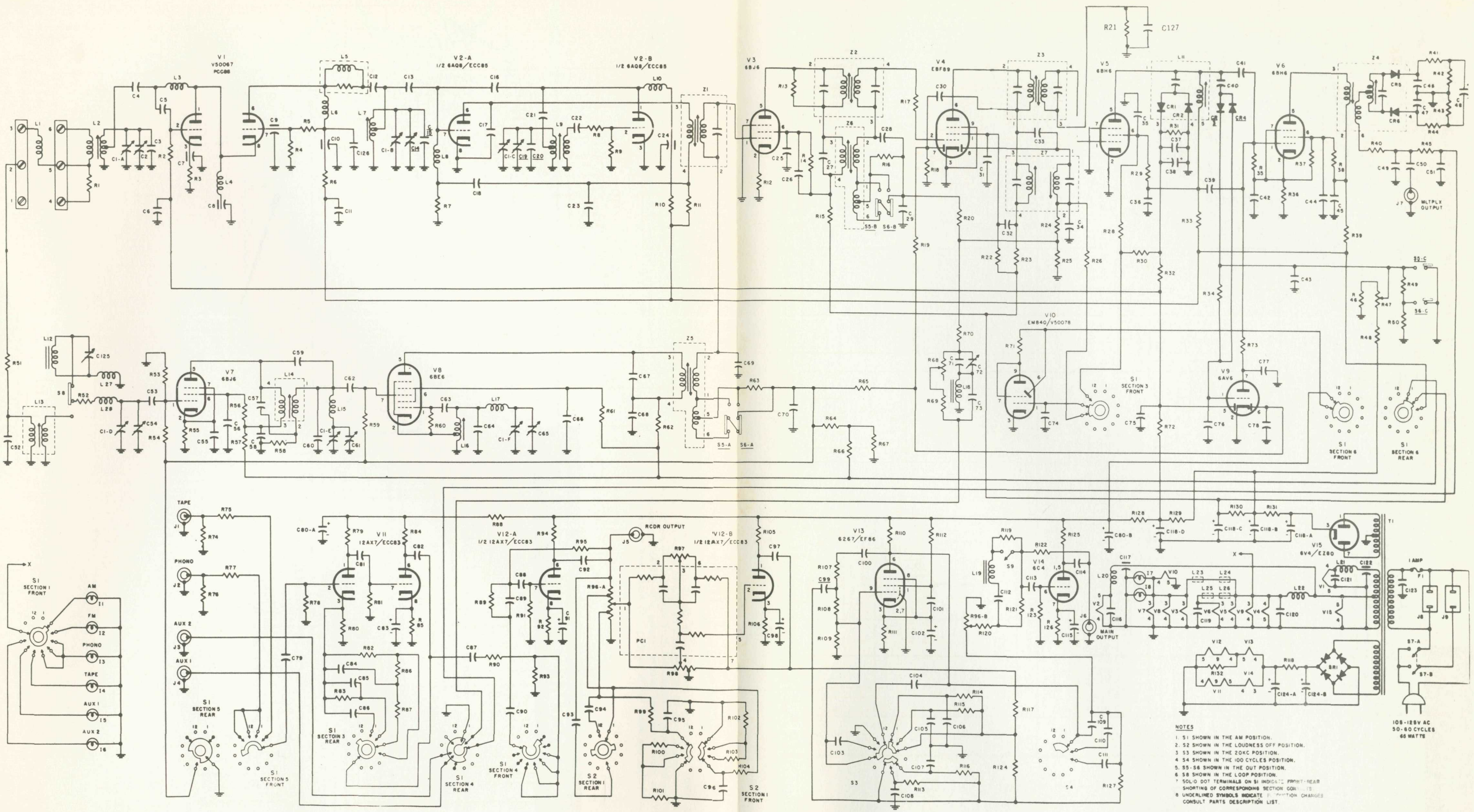
MECHANICAL PARTS

ORDER NO.	DESCRIPTION
A-629-154	Dial pointer
N-629-133	Dial glass
AS-520-154	Dial glass corner bracket assy
AS-629-161	Escutcheon (with side windows)
AS-629-115	Dress panel (without escutcehon)
AS-629-162	Dress panel and escutcheon, assembled
E-50049-12	Knob: channel selector, bass, treble
E-50049-2	Knob: volume
E-50049-4	Knob: loudness contour, noise filter
E-50049-13	Knob: rumble filter
E-50049-1	Knob: station selector

MOUNTING HARDWARE

H121S472AA	Machine screw, four required, 1 inch/10-32/RH
H103W142	Flat washer, four required

PARTS DESCRIPTION LIST



NOTES

1. S1 SHOWN IN THE AM POSITION.
2. S2 SHOWN IN THE LOUDNESS OFF POSITION.
3. S3 SHOWN IN THE 20KC POSITION.
4. S4 SHOWN IN THE 100 CYCLES POSITION.
5. S5-S6 SHOWN IN THE OUT POSITION.
6. S8 SHOWN IN THE LOOP POSITION.
7. SOLID DOT TERMINALS ON S1 INDICATE FRONT-REAR SHORTING OF CORRESPONDING SECTION CONTACTS.
8. UNDERLINED SYMBOLS INDICATE FUNCTION CHANGES CONSULT PARTS DESCRIPTION LIST.

SCHEMATIC DIAGRAM

THE FISHER 90-T

ALIGNMENT INSTRUCTIONS

Read These Instructions With Extreme Care Before Attempting Alignment.

CHASSIS: Turn the Station Selector completely counterclockwise, without forcing. Dial pointer should be at zero index mark on logging scale. If not, re-set the dial pointer as described under Dial Cord Replacement. Disconnect external antennas, antenna link between terminals 1 and 2. Set tone controls to flat. Turn loudness contour control and presence switch off. Switch rumble filter to 20 cycles, and noise filter to 20 KC. When using an oscilloscope for alignment, set volume control for no overload, as shown by proper waveform shape.

SIG. GEN: The signal generator equipment must be able to supply the following: AM RF modulated 30% at 400 cps, FM RF modulated 30% (±22.5-KC deviation) at 400 cps, accurately calibrated 10-KC audio output for adjusting 10-KC AM whistle filter, AM IF with 30-KC sweep for AM bandwidth adjustment.

INDICATOR: DC VTVM and SCOPE for alignment. AC VTVM for 10-KC AM whistle filter adjustment. AC VTVM and SCOPE for FM muting adjustment.

ALIGNMENT: Allow the chassis and test instruments to warm up for at least fifteen minutes. Adjust the line voltage for 117 volts AC, 50-60 cycles). Use fully insulated tools: a small slot-head screwdriver for all capacitors, L13 and L16; a K-tran tool for Z1, Z2, Z3, Z5, Z6, Z7, and L14; a hex tool for Z4, L2, L7 and L11.

AM ALIGNMENT

Switch channel selector to AM.

FM ALIGNMENT

Switch channel selector to FM.

	CHASSIS			SIGNAL GENERATOR			INDICATOR		ALIGNMENT	
STEPS	PUSH BUTTONS	LOOP SW	STATION SELECTOR	COUPLING	FREQ.	MOD.	TYPE	CONNECTION	ADJUST	INDICATION
1	AM SHARP (DISTANT)	EXT	Point of no signal and no interference	.01-uf capacitor in series with hot lead to V8, pin 7	455 KC	30% AM at 400 cps	DC VTVM to Z7 pin 2, or SCOPE to main output		Z5, Z6, Z7 top and bottom	Maximum negative voltage
2	"	"	1400 KC	220-uuf capacitor in series with hot lead to antenna terminal 2	1400 KC	"	"		C54, C61, C65	"
3	"	"	600 KC	"	600 KC	"	"		L13, L14 L16	"
4	Repeat steps 2 and 3 at least once for proper dial calibration									
5	AM SHARP (DISTANT)	LOOP	1400 KC	Hot lead loosely coupled to loopstick	1400 KC	"	"		C80	"
6	AM BROAD (LOCAL)	EXT	Point of no signal and no interference	.01-uf capacitor in series with hot lead to V8, pin 7	455 KC	30-KC sweep	SCOPE	Main output	Z7 top	Adjust slightly for symmetrical curve
7	OFF (DISTANT)	—	"	Ungrounded tube shield of V2	10.7 MC	None	DC VTVM	L11, pin 3	Z1, Z2, Z3 top and bottom, L11 bottom	Maximum negative voltage
8	"	—	"	"	"	"	"	C48, neg. terminal	Z4 bottom	"
9	"	—	"	"	"	"	"	R45-C51 junction	Z4 top	Zero reading on zero-center scale
10	"	—	106 MC	Two 120-ohm carbon resistors in series with leads to antenna terminals 5 and 6	106 MC	30% FM (22.5 KC dev) at 400 cps	DC VTVM to L11, pin 3, and SCOPE to main output		C 19	Check for sine waveform, and adjust for max negative voltage
11	"	—	90 MC	"	90 MC	"	"		L9	"
12	"	—	106 MC	"	106 MC	"	"		C2 & C14	"
13	"	—	90 MC	"	90 MC	"	"		L2 & L7	"
14	Repeat steps 4 through 7 at least once for proper dial calibration and maximum output									

ADJUSTING FM MUTING LEVEL: Connect signal generator as in step 10 of Alignment Instructions. Tune chassis to 98 MC. Set signal generator for 98 MC with 30% FM (22.5 KC deviation) at 400 cps, and 100 uv output. Connect oscilloscope to main output, and check waveform for no overload and no clipping. Connect AC VTVM to main output and observe reading with DISTANT pushbutton depressed. Depress LOCAL pushbutton, and adjust R47 for reading 2 db below reading with DISTANT pushbutton depressed.

ADJUSTING 10-KC AM WHISTLE FILTER: Connect an audio oscillator to the junction of R24 and R25, and set for 10 KC. The oscillator MUST be accurately calibrated, or this adjustment should not be attempted. Connect an AC VTVM to the chassis main output. Make back-and-forth adjustments of R68 and C72 until a minimum reading is obtained on the meter. Use a small slot-head screwdriver for both adjustments.

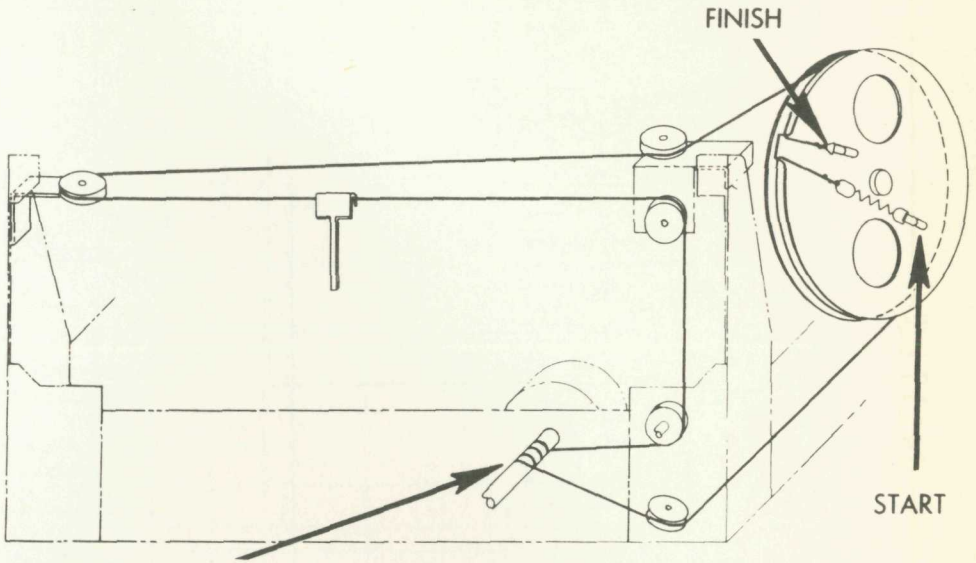
DIAL CORD REPLACEMENT INSTRUCTIONS

1. Remove chassis from cabinet. Remove all knobs. Carefully remove the hexagonal nuts located behind the channel selector and station selector knobs. Remove the two hexagonal screws holding the brass panel assembly. These are located behind the front panel, near the upper corners. Carefully lift the brass panel away. Remove bottom cover.

2. Remove the defective cord and the dial pointer. String the new dial cord as shown in the diagram at the right. The three turns around the station selector shaft (behind the bracket) are made back-to-front in a clockwise direction.

3. Turn the station selector to its extreme counterclockwise position, without forcing. Slip the dial pointer onto the top edge of the metal front panel and position at the index mark at the low end of the logging scale. Thread the dial cord in the three clips at the back of the dial pointer, after affixing a small piece of tape to the cord at the point it passes under the center clip. Check the position of the dial pointer as at the beginning of this step, then apply household cement to secure the pointer to the dial cord.

4. Replace bottom cover. Replace the brass panel assembly, making sure to use both the hexagonal screws and the nuts removed in step 1.



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